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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	: Attorney Docket No. T-5979
Jesse Meyer et al.	: CONFIRMATION NO.: 7015
Serial No. 10/660,948	: GROUP ART UNIT 1797
Filed: September 12, 2003	: EXAMINER: JAMES GOLOBOY
For: PROCESS FOR THE PREPARATION OF STABILIZED POLYALKENYL SULFONIC ACIDS	: P.O. Box 6006 : San Ramon, CA 94583-0806

RESPONSE TO FINAL REJECTION

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants respectfully respond to the Examiner's Final Rejection which was mailed July 22, 2010, for which a three-month shortened statutory period for response was set. Filed concurrently herewith are a three month Petition for Extension of Time under 37 CFR 1.136, a Notice of Appeal and appropriate fees for the Petition for Extension of Time and

the Notice of Appeal.

Also, Applicants respectfully bring to your attention that the due date of this Final Office Action fell on Saturday, January 22, 2011; therefore, Applicants respectfully submit this response on Monday, January 24, 2011.

Amendments to the Claims are reflected in the listing of claims which begins on page 3 of this paper.

Remarks/Arguments begin on page 7.

Introductory Comments

Applicants submit a response to the Examiner's Final Rejection. **Remarks** begin on page 3 of this response.

1. (Currently Amended) A process for making a stabilized polyalkenyl sulfonic acid comprising:

   (a) reacting a polyalkene with SO_3 in a first reaction vessel thereby producing a polyalkenyl sulfonic acid product; and

   (b) stabilizing the product of step (a) by neutralizing with a neutralizing agent, wherein the neutralizing agent is an alkaline earth metal hydroxide, as the product of step (a) exits the first reaction vessel and prior to or concurrently with entering a second vessel for further reaction or storage, wherein neutralization occurs in the absence of ammonia or sodium hydroxide; wherein the time between when the polyalkenyl sulfonic acid product leaves the first reactor and is stabilized by neutralization is between 2 seconds and one hour.

2. (Canceled) The process according to Claim 1 wherein the neutralizing agent is an alkaline earth metal hydroxide.

3. (Original) The process according to Claim 1 wherein the product of step (b) contains less than 20% sultones.

4. (Original) The process according to Claim 1 wherein the polyalkenyl group is a polyisobutenyl group.

5. (Previously Amended) The process according to Claim 4 wherein the polyisobutenyl group is derived from polyisobutene containing greater than 20 mole percent of alkylvinylidene and 1,1-dialkyl isomers.

6. (Original) The process according to Claim 5 wherein the polyisobutenyl group is derived from polyisobutene containing greater than 50 mole percent of alkylvinylidene and 1,1-dialkyl isomers.

7. (Original) The process according to Claim 6 wherein the polyisobutenyl group is derived from polyisobutene containing greater than 70 mole percent of alkylvinylidene and 1,1-dialkyl isomers.

8. (Original) The process according to Claim 2 wherein the alkaline earth metal hydroxide is calcium hydroxide.

9. (Original) The process according to Claim 1 wherein the polyalkene has a number average molecular weight of about 300 to about 1000.

10. (Original) The process according to Claim 9 wherein the polyalkene has a number average molecular weight of about 300 to about 750.

11. (Original) The process according to Claim 10 wherein the polyalkene has a number average molecular weight of about 350 to about 600.

12. (Original) The process according to Claim 1 wherein the amount of fragmentation in the product of step (b) is less than about 15%.

13. (Original) The process according to Claim 1 further comprising mixing a carboxylic acid with the polyalkene prior to reacting with SO_3.

14. (Original) The process according to Claim 13 wherein the polyalkene is polyisobutene.

15. (Original) The process according to Claim 14 wherein the polyisobutene has a number average molecular weight of at least about 300 to about 1000.

16. (Original) The process according to claim 13 wherein the carboxylic acid is acetic acid.

17. (Original) The process according to Claim 1 further comprising diluting the polyalkene prior to reaction with SO_3.

18. (Original) The process according to Claim 16 wherein the diluted polyalkene is mixed with carboxylic acid prior to reaction with SO_3.

19. (Original) The process according to Claim 1 further comprising the step of overbasing the neutralized product of step (b) with an alkaline earth metal basic salt.

20. (Original) The process according to Claim 19 wherein water is used as a promoter.

21. (Original) The process according to Claim 20 wherein the amount of water used is from about 0.5 to about 8.0 wt% of the total stabilized polyalkenyl sulfonic acid.

22. (Original) The process according to Claim 19 wherein the overbasing temperature is from 100°C to about 170°C.

23. (Original) The process according to Claim 19 wherein the overbasing pressure is from about 25 to about 65 psia.

24. (Previously Amended) A process for overbasing polyalkenyl sulfonic acids consisting essentially of overbasing the polyalkenyl sulfonic acid with an alkaline earth metal basic salt and wherein water is used as a promoter.

25. (Previously Amended) The process according to Claim 24 wherein the amount of water used is from about 0.5 to about 8.0 wt% of the total stabilized polyalkenyl sulfonic acid.

26. (Previously Amended) The process according to Claim 24 wherein the overbasing temperature is from 100°C to about 170°C.

27. (Previously Amended) The process according to Claim 24 wherein the overbasing pressure is from about 25 to about 65 psia.

R E M A R K S

Disposition of the Claims

The Examiner has rejected Claims 1-22 and 24-26 under 35 U.S.C. 103(a) as being unpatentable over Hutchings et al. (U.S. Patent No. 3,076,841) in view of Harrison et al. (WO 01/70830) and Nicolet (U.S. Patent No. 4,321,214).

The Examiner has rejected Claims 23 and 27 under 35 U.S.C. 103(a) as being unpatentable over Hutchings in view of Harrison and Nicolet as applied to Claims 1-22 above, and further in view of Gragson et al. (U.S. Patent No. 3,384,585).

Summary of the Invention

Before considering the rejection, it is believed that a brief review of the present invention will be helpful.

Applicants have discovered an improved process for making polyalkenyl sulfonic acids and the corresponding overbased sulfonates. In particular, the Applicants' invention employs a polyalkenyl sulfonic acid treatment step. This step treats the reaction product and by-products of polyalkene and sulfur trioxide (i.e., polyalkenyl sulfonic acid, sulfuric acid, recovered polyalkene sultones, and sulfur trioxide) prior to the polyalkenyl sulfonic acid being overbased in a subsequent reaction. The treatment step stabilizes the polyalkenyl sulfonic acid product and by-products by neutralizing the acid with a neutralizing agent, such as an alkaline earth metal hydroxide. This treatment step takes place within a narrow range of time (i.e., between 2 seconds and one hour) and before further processing the polyalkenyl sulfonic acid.

35 U.S.C. § 103 (a) Rejection of Claims 1-22 and 24-26

Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. 103(a) rejection of Claims 1-22 and 24-26 as being unpatentable over Hutchings et al. (U.S. Patent No. 3,076,841) in view of Harrison et al. (WO 01/70830) and Nicolet (U.S. Patent No. 4,321,214).

The Examiner has maintained his previous rejections. Applicants respectfully disagree. In addition to the Applicants previously submitted arguments, which the Applicants maintain, Applicants submit that the references either alone or in combination fail to suggest the presently claimed invention.

As stated previously, Hutchings is directed to neutralizing petroleum sulfonic acids with an alkaline earth metal base. In the Examiner's response dated 8/14/2007, the Examiner asserts that there is motivation to combine the polyalkenyl teaching of Harrison with Hutchings, which teaches neutralizing a sulfonic acid. The Harrison reference teaches that there is a need for sulfonates that "can serve as a replacement for the natural sulfonates." Harrison does not teach or suggest that the polyalkenyl sulfonic acid of its invention is reacted with a neutralizing agent that is an alkaline earth metal hydroxide. The Examiner has impermissibly applied hindsight in view of the Applicants' invention to assert that the combination of Hutchings in view of Harrison and Nicolet would yield the presently claimed invention.

In addition to Hutchings failing to teach or suggest employing a polyalkenyl sulfonic acid (see column 2, lines 34-37) and Harrison failing to teach the neutralization step of the presently claimed invention, Nicolet fails to teach reacting a polyalkenyl sulfonic acid with a neutralizing agent that is an alkaline earth metal hydroxide. Instead, Nicolet teaches reacting petroleum sulfonic acid with calcium carbonate. Nicolet further states that the process employed in its invention leaves the sulfonic acid unneutralized (see column 3, lines 44-45). Nicolet is focused on neutralizing sulfuric acid and removing the

sulfuric acid from solution (see column 3, lines 33-39). Nicolet further states that calcium carbonate is insoluble and easily removed [from the solution]. Clearly, Nicolet is focused on removing entrained sulfuric acid from the solution. There is no motivation to employ an alkaline earth metal hydroxide as the neutralizing agent because Nicolet is directed towards removing sulfuric acid from the solution and needs a neutralizing agent that will combine with the sulfuric acid to remove it. Clearly, motivation is lacking to combine Nicolet, Hutchings and Harrison.

Accordingly, Applicants submit that one of ordinary skill in the art would not have been motivated to modify the teachings of the Hutchings, Harrison and Nicolet references to obtain the presently claimed invention. The Applicants assert that the Examiner has failed to establish a prima facie case of obviousness. Accordingly, Applicants request withdrawal of the 35 U.S.C. § 103 (a) rejection of Claims 1-22 and 24-26.

35 U.S.C. § 103 (a) Rejection of Claims 23 and 27

Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. 103(a) rejection of Claims 23 and 27 under 35 U.S.C. 103(a) as being unpatentable over Hutchings in view of Harrison and Nicolet as applied to Claims 1-22 above, and further in view of Gragson et al. (U.S. Patent No. 3,384,585).

Applicants maintain their previously submitted arguments and in view of the current amendment to Claim 1. Applicants submit that independent Claims 1 and 24 are patentable and that dependent Claims 23 and 27 are patentable in view of the patentability of the claims from which they depend.

Accordingly, Applicants submit that one of ordinary skill in the art would not have been motivated to combine the teachings of Hotchings in view of Harrison and Nicolet, as applied to Claims 1-22 above, and further in view of Gragson to obtain the presently claimed invention. The Applicants assert that the Examiner has failed to establish a prima facie case of obviousness and respectfully request withdrawal of the 35 U.S.C. § 103 (a) rejection of Claims 23 and 27.

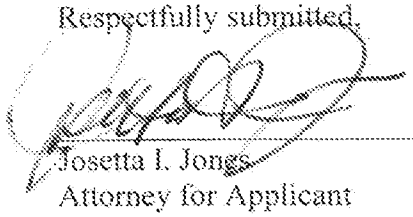
Conclusion

It is respectfully submitted that the references fail to teach or suggest Applicant's presently claimed invention.

For the reasons stated, Applicants submit that this application is in condition for allowance and notice to that effect is earnestly solicited.

The Director of Patents is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 03-1620 for the above-referenced patent application.

Respectfully submitted,



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